14

Posttraumatic Stress Disorders in Victims of Violence

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Martha S. was a 32-year-old single white, graduate of a prestigious northeastern business school, now embarked upon a highly successful career at a major midwestern corporation. She lived alone in an upscale garden apartment that had security guards on duty around the clock. One night, after returning home from a dinner party, she entered her living room to discover two bearded men in shabby clothes robbing her apartment. Before she could flee or cry out, the taller of the two grabbed her by the hair, covered her face with a pillow, and threw her down on the couch. While he held her down, his partner tore off her clothes and raped her. When he was done, his partner did the same. When the partner had finished, he pulled out a knife and stabbed her through the ribs so deeply that the knife penetrated her heart. She remembers how terrified she was throughout the episode, the excruciating pain in her chest from the knife wound, and the overwhelming fear that she was about to die. She has no further memories of the two assailants who escaped with her television, jewelry, and other prized possessions. What she does remember is the blood oozing out of her chest. She remembers how it smelled and how warm and slippery it was as she crawled on her belly across the living room rug, somehow getting through the front door, and reaching her neighbor's apartment across the hall. She does not really remember ringing his doorbell or telling him what had happened. She must have succeeded, however, since an ambulance was called and she was rapidly transported to the hospital. She survived the open-heart surgery and convalesced without complications.

After discharge from the hospital she went immediately to her hometown in New England to stay with her mother for several months until she felt strong enough to return to work. She was very optimistic on the eve of her return back to the Midwest. She enjoyed the plane trip and felt good on the taxi ride in from the airport. When she entered her apartment, however, she was overwhelmed by growing anxiety, especially in the living room. When darkness fell, the anxiety escalated to terror. She began to have vivid recollections of her two assailants and from time to time thought that she actually saw them hiding behind the living room curtains, although she knew that her mind was playing tricks on her. She also knew that she could not stand to be alone in her apartment and left to spend the night with a girlfriend who lived nearby.

She never returned to her apartment except to get her things and move elsewhere. Even in her new lodgings, however, she felt unsafe, especially after dark, and had frequent nightmares about the rape. It was difficult for her to perform at work as before. Her attempts to focus on work were constantly interrupted by trauma-related images and she could not experience the old excitement and enjoyment of the vocational challenges that she had relished months before. She found herself obsessed with fears about her personal safety. Whereas previously she had been open, adventurous, and gregarious, she was now fearful, withdrawn, suspicious, and jumpy. She abruptly discontinued what had been a satisfying sexual relationship with a man for whom she cared, and she became panic-stricken when bearded men, especially bearded men wearing shabby clothes, came anywhere near her.

Martha S. is suffering from posttraumatic stress disorder (PTSD). Based on recent epidemiological data (1), 10.4% of all American women and 5% of all American men will also develop PTSD at some point in their lives. Using this clinical vignette as the frame of reference, this chapter begins by describing the clinical phenomenology and diagnostic criteria for this disorder. Next, it reviews the epidemiology of PTSD, especially when it has been precipitated by interpersonal violence. Understanding the pathophysiology of PTSD is of great importance from both a scientific and clinical perspective. Scientifically, the abnormalities associated with PTSD can best be understood as manifestations of fundamental psychological processes that mediate learning and appraisal and as manifestations of fundamental neurobiological mechanisms that mediate coping, and adaptation to stress. Clinically, a rational approach to PTSD treatment can be conceptualized only by designing interventions that specifically address the complex pathophysiology of this disorder. Following a review of current PTSD treatment, the chapter describes some major controversies in the field of psychotraumatology. Finally, an agenda for future research is presented.

I. CLINICAL PHENOMENOLOGY AND DIAGNOSTIC CRITERIA

Individuals can only develop PTSD if they have been exposed to a traumatic event. As operationalized in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* DSM-IV (2) and shown in Table 1 (as the "A1" criterion), traumatic events "involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others." Certainly the near lethal and sexual assault experienced by Martha S. meets this definition, as does exposure to war, torture, genocide, nuclear attack, natural disasters, or industrial accidents. When PTSD was first introduced as a diagnostic entity in the DSM-III (3), it was thought that such events were "beyond the range of normal human experience." Alas, we have learned since that time that exposure to trauma is not a rare event. As shown in Table 2 (abstracted from Ref. 1), more than half of all American men (60.7%) and women (51.2%) have been exposed to at least one traumatic event in the course of their lives. With respect to interpersonal violence (rape, molestation, physical attack, and physical abuse), twice as many women (33.2%) as men (17.8%) have been traumatized. This difference may be responsible for the higher PTSD rates observed among women than men, as discussed further on.

All adverse events are not traumatic. Indeed, very painful stressors such as divorce, failure, rejection, serious illness, financial reverses, and the like do not meet the DSM-IV A1 criterion. Serious psychological reactions to such vicissitudes of life are characterized as adjustment disorders rather than PTSD. This dichotomization between traumatic and other stressors is based on the assumption that although most individuals have the ability to cope with ordinary stress, their adaptive capacities may be overwhelmed by a traumatic stressor.

Clinical experience with the PTSD diagnosis has shown that most people who are exposed to a catastrophic event do not develop PTSD. Indeed, there are vast individual differences regarding the capacity to cope with a traumatic event, and different people may have different psychological responses to the same catastrophe. Such observations have prompted a recognition that trauma, like pain, is not an external phenomenon that can be completely objectified. Like pain, the traumatic experience is filtered through a cognitive and emotional process called *appraisal.* Therefore, the same event may be appraised by some as a severe threat, while others will consider it a challenge with which they can cope. Because appraisal plays such an important role in the psychological processing of a catastrophic event, DSM-IV added the "A2" criterion (Table 1) to the definition of trauma; "the individual's response must involve an intense emotional reaction such as fear, helplessness, or horror." In other words, exposure to a catastrophic event can be considered traumatic only if such exposure precipitates an intense

Table 1 Proposed DSM-IV Criteria for PTSD

A. The person has been exposed to a traumatic event in which both of the following have been present:
   (1) the person has experienced, witnessed, or been confronted with an event or events that involve actual or threatened death or serious injury, or a threat to the physical integrity of oneself or others
   (2) the person's response involved intense fear, helplessness, or horror. Note: in children, it may be expressed instead by disorganized or agitated behavior

B. The traumatic event is persistently reexperienced in at least one of the following ways:
   (1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. Note: in young children, repetitive play may occur in which themes or aspects of the trauma are expressed
   (2) recurrent distressing dreams of the event. Note: in children, there may be frightening dreams without recognizable content
   (3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated). Note: in young children, trauma-specific reenactment may occur.
   (4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
   (5) physiologic reactivity upon exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:
   (1) efforts to avoid thoughts, feelings, or conversations associated with the trauma
   (2) efforts to avoid activities, places, or people that arouse recollections of the trauma
   (3) inability to recall an important aspect of the trauma
   (4) markedly diminished interest or participation in significant activities
   (5) feeling of detachment or estrangement from others
   (6) restricted range of affect (e.g., unable to have loving feelings)
   (7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by at least two of the following:
   (1) difficulty falling or staying asleep
   (2) irritability or outbursts of anger
   (3) difficulty concentrating
   (4) hypervigilance
   (5) exaggerated startle response

E. Duration of the disturbance (symptoms in B, C, and D) is more than one month.

(*continued*)

Table 1 Continued

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: if duration of symptoms is less than three months

Chronic: if duration of symptoms is three months or more

Specify if:

With Delayed Onset: onset of symptoms at least six months after the stressor

emotional reaction. This is certainly true for Martha S., who was terrified, painfully injured, and fearful that she would die during her terrible ordeal. Although appraisal is an important issue in many catastrophic events, such as accidents and natural disasters, the experience of most people exposed to interpersonal violence usually meets the DSM-IV definition of trauma.

The "B" or reexperiencing criterion includes symptoms that are perhaps the most distinctive and readily identifiable manifestations of this disorder. For individuals with PTSD, the traumatic event remains, sometimes for decades or a lifetime, a dominating psychological experience that retains its power to evoke panic, terror, dread, grief, or despair in the face of intrusive daytime recollections, traumatic nightmares, and psychotic re-enactments known as PTSD flashbacks. For Martha S., such reexperiencing flashbacks were so severe that she had

Table 2 Lifetime Prevalence of Trauma Experience

Trauma	Men (%) ($N = 2812$)	Women (%) ($N = 3065$)
Any trauma	60.7	51.2
Number of traumas		
1	25.6	26.3
2	14.5	13.5
3	9.5	5.0
4	10.2	6.4
Rape[a]	0.7	9.2
Molestation[a]	2.8	12.3
Physical attack[a]	11.1	6.9
Physical abuse[a]	3.2	4.8
Combat	6.4	0.0
Threat with weapon	19.0	6.8
Accident	25.0	13.8
Natural disaster with fire	18.9	15.2

[a]Interpersonal violence.

Source: Adapted from Ref. 1.

to move from her apartment, could not keep her mind on her work, and altered her behavior and lifestyle significantly. PTSD symptoms are often triggered by stimuli or situations that are reminiscent of the initial traumatic event. For that reason, researchers can reproduce PTSD symptoms in the laboratory by exposing affected individuals to stimuli associated with the original traumatic event (4,5). That is why fear conditioning has been proposed as one conceptual model for PTSD (6). Martha S. exhibited this phenomenon in a number of ways. First, she became initially symptomatic when reexposed to the stimuli of her apartment, where she had been raped and almost murdered. Her symptoms intensified at night (the time of the trauma), when it became dark. She became so terrified that she had PTSD flashbacks in which she "saw" her assailants hiding behind the curtains. She terminated a sexual relationship, which she had previously enjoyed, partly because stimuli associated with sexual activity triggered intolerable recollections of the rape. Finally, her new fear of bearded men, based on this distinguishing facial characteristic of both assailants, shows how trauma-related stimuli can change the behavior of a woman who had never exhibited such fears before she was raped and almost killed. This also illustrates how PTSD patients appraise the world as a dangerous place and become easily alarmed by any stimulus that has become associated with the traumatic experience.

The "C" or avoidant/numbing criterion consists of symptoms reflecting behavioral, cognitive, or emotional strategies by which PTSD patients attempt to reduce the likelihood that they will expose themselves to trauma-related stimuli or, if exposed, will minimize the intensity of their psychological response. Behavioral strategies include avoiding any situation in which PTSD patients perceive a risk of confronting such stimuli. In its most extreme manifestation, avoidant behavior may superficially resemble agoraphobia, because the person with PTSD is afraid to leave the house for fear of confronting reminders of the traumatic event(s). For Martha S., avoidant behaviors included moving out of her apartment, avoiding social situations, terminating a sexual relationship, and avoiding bearded men.

Numbing symptoms are psychological rather than behavioral strategies by which individuals reduce or obliterate the conscious experience of trauma-based memories and feelings. Such symptoms include amnesia for traumatic events, dissociation, feelings of detachment, and a restricted range of affect. Individuals with PTSD cannot tolerate strong emotions, especially those associated with the traumatic experience. They separate the cognitive from the emotional aspects of psychological experiences and perceive only the former. Such "psychic numbing" is an emotional anesthesia that makes it extremely difficult for people with PTSD to participate in meaningful interpersonal relationships. That is another reason why Martha S. terminated her relationship with the man with whom she had previously enjoyed a very satisfactory emotional and sexual relationship.

Criterion "D" includes arousal symptoms such as insomnia, irritability, and inability to concentrate (all exhibited by Martha S.); these are often found in other anxiety disorders such as panic and generalized anxiety disorder. Hypervigilance and an exaggerated startle response (both also exhibited by Martha S.) are more characteristic of PTSD. Hypervigilance is a manifestation of the traumatized person's perpetual surveillance of his or her environment to detect any signs of danger that might provoke another traumatic episode. The hypervigilance in PTSD may sometimes become so intense as to appear like frank paranoia. The agitation and jumpiness seen in PTSD patients is a manifestation of the exaggerated startle response, a hard-wired neurological reflex that is abnormally resistant to extinction in patients with this disorder (6,7).

Martha S. also met the "E" criterion, because her symptoms persisted for more than a month, and the "F" criterion, because her PTSD caused clinically significant distress and impairment in several functional domains.

II. EPIDEMIOLOGY

In the National Comorbidity Survey, Kessler and associates (1) reported that the lifetime prevalence of PTSD among American men and women was 5.0 and 10.4% respectively. As shown in Table 3, lifetime prevalence among men and women who have actually been traumatized is 8.1 and 20.4%, respectively. It is important to emphasize, in this regard, that the majority of people exposed to a traumatic event do not develop PTSD. For women, especially, exposure to interpersonal violence (rape, molestation, physical attack, and physical abuse) is particularly predictive of the later development of PTSD. Rape is a relatively rare

Table 3 Association of Specific Traumas with PTSD

Trauma	Men (%) ($N = 2812$)	Women (%) ($N = 3065$)
Any trauma	8.1	20.4
Rape[a]	65.0	45.9
Molestation[a]	12.2	26.5
Physical attack[a]	1.8	21.3
Physical abuse[a]	22.3	48.5
Combat	38.8	–
Threat with weapon	1.9	32.6
Accident	6.3	8.8
Natural disaster with fire	3.7	7.5

[a]Interpersonal violence.

Source: Adapted from Ref. 1.

event for men (0.7%) as compared with women (9.2%), as shown in Table 2; however, when it does occur, it is much more likely to cause PTSD among men (65.0%) than among women (45.9%), as shown in Table 3. These data also demonstrate that exposure to interpersonal violence is more likely to cause PTSD than a traumatic event that lacks a human perpetrator, such as a natural disaster with fire.

In general, epidemiological research on PTSD has focused on a limited number of selected populations at risk, such as military veterans, sexual assault survivors, and natural disaster survivors (see comprehensive review, Ref. 8, for further references), although a few investigators have studied the prevalence of PTSD among victims of crime (9,10). Even the literature on the Nazi holocaust has been inconsistent in relating its results to PTSD (see Refs. 11 and 12). In general, much less attention has been paid to cohorts exposed to domestic violence, urban violence, physical abuse, child abuse, or other traumas. Indeed, from a PTSD perspective, it is frustrating to contemplate the large literature in the abuse and violence field because it usually does not go far enough. It is not enough to know whether an individual has been exposed to sexual/physical abuse or domestic/urban violence, since the majority of traumatized people do not develop PTSD.

From this perspective, it is equally important to know whether a given traumatic experience resulted in PTSD or not. Therefore, it is encouraging that a number of recent reviews have conceptualized interpersonal violence from a PTSD perspective with respect to partner violence (13–16); child abuse (16–18); torture (19,20); and shooting and hostage situations among children (21). In epidemological research on infectious diseases, both vector (infectious agent) and host (susceptibility to infection) factors are considered important. We must do the same in PTSD research and address both vector (traumatic exposure) and host (vulnerability to PTSD) factors.

In order to understand why some traumatized people develop PTSD while most do not, it is useful to consider three different domains in which individual differences may affect vulnerability: appraisal tendencies, constitutional/genetic variables, and specific risk factors. First, as noted earlier, the appraisal or subjective response to a traumatic event may differ from one individual to another. Some people may be more likely to perceive situations as frightening or threatening than others. That is why the DSM-IV definition of trauma has been expanded to stipulate that exposed individuals must experience "intense fear, helplessness, or horror" (the "A2" criterion) for that exposure to be considered "traumatic." Second, Yehuda and McFarlane (22) have hypothesized that there is a constitutional vulnerability that distinguishes traumatized people who develop PTSD from the majority of traumatized people who never exhibit the disorder. It is interesting, in this regard, to consider the early work of Cohen and associates (23) on World War II veterans with "neurocirculatory asthenia" (NCA).

Many if not most of these veterans appear to have had what would now be called PTSD. After characterizing the medical and psychiatric symptoms of these individuals, Cohen et al. went on to conduct family studies, since they had concluded that there was a genetically mediated vulnerability for NCA (24). In that regard, it might be said that almost 50 years ago, Cohen et al. anticipated Yehuda and McFarlane's hypothesis regarding a constitutional vulnerability to PTSD. Evidence for a genetic risk for developing PTSD has also been obtained from a study of male monozygotic twins who served in Vietnam and were compared with their identical siblings who also served in the military but not in Vietnam (25).

III. RISK FACTORS FOR PTSD

The third domain in which individuals differ with respect to vulnerability to develop PTSD concerns specific risk factors. In considering risk factors for PTSD, it is useful to divide them into pretraumatic, traumatic, and posttraumatic categories. Pretraumatic risk factors that have been identified in a number of studies (see review by Fairbank et al., Ref. 8) include (a) familial psychiatric illness; (b) parental poverty; (c) childhood trauma (e.g., sexual assault, parents separated or divorced before child reached age 10); (d) childhood behavior disorder; (e) neuroticism; (f) introversion; (g) prior psychiatric disorder; (h) adverse life events before and after the trauma; (i) being female and between the ages of 36 and 50; (j) being concerned about finances; and (k) having had prior physical health problems. In the National Comorbidity Survey (1), PTSD was most prevalent among women, the previously married, and persons of lower socioeconomic status.

Such pretraumatic risk factors play a small but significant role in predicting PTSD prevalence. Much more important predictors are aspects of the traumatic event itself: severity of exposure; whether a person was injured during the episode; for Vietnam veterans, whether the individual witnessed or participated in atrocities (26); and for rape victims, whether the victim had prior acquaintance with the perpetrator or whether her life was threatened at the time of the rape (27). Indeed, a robust finding in almost all PTSD research has been a linear dose-response curve between severity of the trauma and the later development of PTSD (28–30) (see Ref. 8 for other references).

Characteristics of the posttraumatic environment have also been shown to be related to the later development of PTSD. Among Vietnam veterans, low levels of postmilitary social support and dysfunctional patterns of social interaction have been shown to increase the risk for PTSD (26–31). Similar findings regarding the deleterious impact of low posttraumatic social support have been shown for rape victims (32,33). Finally, there has been considerable speculation regarding the importance of rapid posttraumatic clinical interventions such as critical inci-

dent stress debriefing (CISD). Mitchell (34) has maintained that when CISD is provided as soon after the trauma as possible, it will prevent the later development of PTSD. This is currently a matter of controversy, however, as discussed below.

IV. COMORBIDITY

If an individual meets diagnostic criteria for PTSD, it is likely that he or she will exhibit at least one other DSM-IV disorder (28,35). In the National Comorbidity Survey, a lifetime history of at least one other psychiatric disorder was found in approximately 80% of all men and women with lifetime PTSD. Among men and women with PTSD, lifetime prevalence of comorbid disorders was approximately 48% for major depressive disorders, 22% for dysthymia, 16% for generalized anxiety disorder, 30% for simple phobia, and 28% for social phobia. Women exhibited greater lifetime prevalence of panic disorder (12.6 to 7.3%) and agoraphobia (22.4 to 16.1%), while men exhibited greater lifetime prevalence of alcohol abuse/dependence (51.9 to 27.9%), drug abuse/dependence (34.5 to 26.9%), and conduct disorder (43.3 to 15.4%) (1).

We have argued elsewhere (36) that high rates of comorbid disorders associated with PTSD may actually reflect shortcomings of a nosology (e.g., DSM-IV) that is predicated entirely on phenomenological observations. For example, there is strong neurobiological evidence suggesting that the major depressive disorder (MDD) usually associated with PTSD is different with respect to adrenocortical function from true melancholia. MDD patients without PTSD are often dexamethasone nonsuppressors, while those with PTSD are often dexamethasone supersuppressors (37). In other words, PTSD plus MDD may not reflect two comorbid disorders (as dictated by current DSM-IV diagnostic decision rules) but rather a depressive subtype of PTSD that is neurobiologically distinct from classic melancholia, or MDD. These considerations may also apply to certain anxiety disorders when they are comorbid with PTSD. Clearly, this is an important and exciting focus for future research.

V. LONGITUDINAL COURSE AND CHRONICITY

Studies of World War II military veterans and Dutch anti-Nazi resistance fighters have shown that PTSD can persist for decades (see review, Ref. 38). Furthermore, symptoms may actually worsen rather than improve over time. Data from the National Comorbidity Survey suggest that approximately 40% of patients with lifetime PTSD are unlikely to recover whether or not they have ever

received treatment. For others, the longitudinal course, as with other chronic medical and psychiatric disorders, is a series of remissions and relapses. When a patient with lifetime PTSD who had been clinically asymptomatic suddenly begins to exhibit the full PTSD pattern of clinical symptoms, the immediate precipitant is usually a situation that resembles the original trauma in a significant way. For example, we might expect that a fully recovered Martha S. who had been asymptomatic for many years might experience a relapse were she again exposed to sexual harassment or assault or even if she learned that her daughter had been sexually traumatized.

As with other medical and psychiatric disorders, PTSD may differ in severity from one person to the next. Some people with this disorder are able to lead productive and fulfilling lives. Others, however, may develop a persistent incapacitating mental illness marked by severe and intolerable symptoms; marital, social, and vocational disability; and extensive use of psychiatric and community services. Such people can often be found on the fringes of society, in homeless shelters, or enrolled in public-sector programs designed for patients with persistent mental illnesses such as schizophrenia, from whom they are superficially indistinguishable (39).

VI. CROSS-NATIONAL AND CROSS-CULTURAL CONSIDERATIONS

The epidemiological and comorbidity data presented previously are derived from studies of American men and women. Surveys of PTSD in other nations have yet to be done. Extrapolating from current research findings, however, it seems likely that PTSD prevalence will be much higher in nations where the probability of exposure to interpersonal violence and war is great. Indeed, nations such as Rwanda, Bosnia, and Cambodia, in which unspeakable violence has been perpetrated within a genocidal context, can be expected to exhibit PTSD prevalence that greatly exceeds that found in the United States.

There have been a number of criticisms of the PTSD diagnosis from a cross-cultural perspective. These include (a) conceptualizing PTSD as a culture-bound syndrome; (b) rejecting PTSD for failing to incorporate unique psychohistorical dimensions that define the meaning of trauma; and (c) rejecting PTSD as a construct because it pathologizes a normal and healthy rehabilitative process that is more suitably characterized as cultural bereavement. We disagree with these criticisms and have argued elsewhere that the PTSD construct has both culture-bound and universal dimensions (40). That is not to say, however, that there may not be other culture-specific idioms of distress, such as *calor* or *atiques de nervios*, that may fall outside strict DSM-IV diagnostic criteria but are significant indi-

cators of clinically significant posttraumatic distress in their own right (41). In this regard, PTSD may be only one of a spectrum of posttraumatic syndromes that need further explication in future research and clinical practice.

VII. PATHOPHYSIOLOGY

A thorough discussion of the current state of knowledge on the pathophysiology of PTSD is beyond the scope of this chapter. A more comprehensive overview can be found in our recent book (42). Kardiner (43) first proposed that "traumatic neurosis" among World War I veterans was a physioneurosis marked by autonomic hyperarousal, exaggerated startle reflexes, and disturbed sleep. Kolb (6), invoking Kardiner's seminal observations, suggested that altered limbic system functioning produced by trauma-induced fear conditioning represented a fundamental abnormality in PTSD. Since then, a number of biobehavioral models have been proposed for PTSD including inescapable stress, fear conditioning, failure of extinction, behavioral sensitization, and kindling (44–47). We have proposed that humans exposed to catastrophic stressors utilize the same neurobiological mechanisms that are activated following exposure to a less severe, "normal" stressor. We have further proposed that failure to cope with traumatic stress successfully has significant neurobiological consequences (42). It is necessary to understand these abnormalities, and once understood, to develop interventions that will apply this fundamental knowledge to clinical situations. The search for effective treatments demands that fundamental laboratory paradigms—heretofore utilized only in basic research on learning, appraisal, stress, and coping—be modified so that clinical abnormalities associated, with PTSD may be subjected to the most rigorous laboratory investigations.

VIII. TREATMENT

Many therapeutic approaches have been advocated for PTSD, including psychodynamic therapy (48); cognitive-behavioral therapy (49); pharmacotherapy (50); group, family, couples, and inpatient treatment (51,52); and treatment for patients dually diagnosed with PTSD and alcoholism/substance abuse (53). Herman (27) has shown that therapists working with patients who have survived different kinds of traumatic events (war, natural disasters, etc.) generally agree that therapy can be divided into three phases: (a) establishing trust, safety, and "earning the right to gain access" to carefully guarded traumatic material (54; p. 806); (b) trauma-focused therapy—exploring traumatic material in depth and titrating intrusive recollections with avoidant/numbing symptoms (55); and (c) helping the patient

disconnect from the trauma and reconnect with family, friends, and society. It should be noted that patients who reach the third phase have achieved some resolution of trauma-specific concerns and are ready to concentrate, almost exclusively, on here-and-now issues concerning marriage, family, work, and other current issues (27,54,56).

Marmar and associates (48) have suggested that there are five identifiable posttraumatic syndromes, each requiring a different treatment approach: normal stress response, acute catastrophic stress reaction, uncomplicated PTSD, PTSD comorbid with other disorders, and posttraumatic personality. The *normal stress response* occurs when healthy adults who have been exposed to a single discrete traumatic event in adulthood experience intense intrusive recollections, numbing, denial, feelings of unreality, and arousal. It has become generally (but not universally—see below) accepted that most individuals will achieve complete recovery following rapid posttraumatic individual or group interventions such as critical incident stress debriefing (CISD) (34,57,58). Often a single 2-hour group debriefing experience is all that is needed. Such sessions begin by describing the traumatic event. They then progress to an exploration of survivors' emotional responses to the event. Next, there is an open discussion of symptoms precipitated by the trauma. Finally, there is a resolution, in which survivors' responses are normalized and adaptive coping strategies are identified. Recent studies, however, have challenged the effectiveness of CISD. Kenardy and associates (59) reported that Australian emergency workers did not benefit from debriefing following an earthquake, while Bisson (60) reported that British burn trauma victims randomly assigned to CISD had worse outcomes than those who did not receive debriefing. In view of the general worldwide belief in the efficacy of CISD and the lack of randomized clinical trials to support this belief, this is a very important area for current and future research.

Acute catastrophic stress reactions are characterized by panic reactions, cognitive disorganization, disorientation, dissociation, severe insomnia, tics and other movement disorders, paranoid reactions, and incapacity to manage even basic self-care, work, and interpersonal functions (61). Treatment includes immediate support, removal from the scene of the trauma, use of anxiolytic medication for immediate relief of anxiety and insomnia, and brief supportive, aggressive, dynamic psychotherapy provided in the context of crisis intervention (48).

Uncomplicated PTSD may respond to group, psychodynamic, cognitive, behavioral, pharmacological, or combination approaches. During the past 10 years we have come to appreciate the powerful therapeutic potential of positive peer group treatment as practiced in Vet Centers for military veterans and in rape crisis centers for sexual assault and domestic violence victims. Peer groups provide an excellent therapeutic setting for trauma survivors because the participants' posttraumatic emotions, memories, and behaviors are validated, normalized, under-

stood, and destigmatized. They are able to risk sharing traumatic material in presence of the safety, cohesion, and empathy provided by fellow trauma survivors. It is often much easier to accept confrontation from a fellow sufferer who has impeccable credentials as a trauma survivor than from a professional therapist who never went through those experiences personally. When group members achieve greater understanding and resolution of traumatic themes, they must next integrate such themes with their current lives and focus on the present rather than the past (27,56).

In brief psychodynamic psychotherapy, trauma survivors focus on the traumatic event itself. Through the retelling of the traumatic event to a calm, empathetic, compassionate and nonjudgmental therapist, the patient achieves a greater sense of self-cohesion, develops more adaptive defenses and coping strategies, and more successfully modulates the intense emotions that emerge during therapy (48). The therapist must constantly address the linkage between posttraumatic and current life stress by helping the patient to identify current life situations that set off traumatic memories and exacerbate PTSD symptoms.

There are two cognitive-behavioral approaches: exposure therapy and cognitive-behavioral therapy (CBT). Exposure therapy includes systematic desensitization on the one hand and imaginal and in vivo techniques such as flooding on the other. In general, flooding has been much more effective than systematic desensitization. The second approach, cognitive-behavioral therapy, includes a variety of anxiety-management training strategies for reducing anxiety, such as relaxation training, stress inoculation training, cognitive restructuring, breathing retraining, biofeedback, social skills training, and distraction techniques (62,63). Foa and associates (64,65) have shown that flooding and anxiety management training are both effective for rape victims with PTSD. They have also speculated that a CBT approach including a combination of exposure and cognitive restructuring might be the most effective one for PTSD (66).

Group treatment has long been a mainstay of PTSD treatment, although there are few systematic evaluations of it. An important exception is the work of Resick and associates (52), who have conducted a series of clinical trials of group psychotherapy with rape victims with PTSD. Their approach is called cognitive processing therapy (CPT), which includes education, exposure, and cognitive components. This group approach shares many of the components used by Foa and associates in individual CBT therapy.

Given our expanding understanding of the many neurobiological abnormalities associated with PTSD (42), pharmacotherapy appears to have a place in PTSD treatment. From a practical perspective, there is no question that drugs can provide some symptomatic relief of anxiety, depression, and insomnia, whether or not they ameliorate core PTSD intrusive and avoidant/numbing symptoms. At this time no particular drug has emerged as a definitive treatment for

PTSD, although medication is clearly useful for symptom relief, thereby making it possible for patients to participate in group, psychodynamic, cognitive-behavioral, or other forms of psychotherapy. In most but not all randomized clinical trials, improvement has been achieved with antidepressants such as imipramine, amitriptyline, phenelzine, and fluoxetine. Results have been mixed, probably because of cohort differences in PTSD severity and chronicity. Promising results in uncontrolled trials indicate that further testing is warranted for antiadrenergic agents such as clonidine and propranolol and for anticonvulsant/antikindling agents such as carbamazepine and valproate (50). I have suggested (67) that the most effective pharmacotherapeutic approaches in the future may involve drugs that address the unique pathophysiology of PTSD. In this regard, corticotropin releasing factor (CRF) antagonists, currently being developed for human trials, appear to be an extremely promising family of drugs to test with PTSD patients.

PTSD comorbid with other DSM-IV Axis I disorders is actually much more common than uncomplicated PTSD. As noted earlier, PTSD is usually associated with at least one other major psychiatric disorder, such as depression, alcohol/substance abuse, panic disorder, and other anxiety disorders (1). Sometimes the comorbid disorder is the presenting complaint that requires immediate attention. At other times, the PTSD appears to be the major problem. In general, the best results are achieved when both PTSD and the comorbid disorder(s) are treated concurrently rather than one after the other. This is especially true for PTSD and alcohol/substance abuse (53,68). Treatment previously described for uncomplicated PTSD should also be used for these patients.

Posttraumatic personality disorder is found among individuals who have been exposed to prolonged traumatic circumstances, especially during childhood, such as childhood sex abuse. These individuals often meet DSM-IV criteria for diagnoses such as borderline personality disorder, somatoform disorder, and dissociative identity disorder (multiple personality disorder). Such patients exhibit behavioral difficulties (such as impulsivity, aggression, sexual acting out, eating disorders, alcohol/drug abuse, and self-destructive actions), emotional difficulties (such as affect lability, rage, depression, panic), and cognitive difficulties (such as fragmented thoughts, dissociation, and amnesia). Treatment generally focuses on behavioral and affect management in a here-and-now context, with emphasis on family function, vocational rehabilitation, social skills training, and alcohol/drug rehabilitation. Long-term individual and group treatments have been described for such patients by Herman (27), Koller et al. (69), and Scurfield (56). Dialectical behavior therapy, a cognitive behavioral group approach developed by Linehan and her associates for chronically suicidal borderline patients (70), may also have a role in the treatment of posttraumatic personality disorder. Trauma-focused treatment should be initiated only after long

therapeutic preparation. Inpatient treatment may be needed to provide adequate safety and safeguards before a therapeutic exploration of traumatic themes is undertaken. The three phases of treatment described earlier apply to these patients as well as those with uncomplicated PTSD, but treatment may take much longer, may progress at a much slower rate, and may be fraught with much more complexity than with other traumatized patients.

IX. CONTROVERSIES

PTSD is inherently a controversial field. Since many traumas are public events that are perpetrated by people, it is reasonable to consider how such human-induced human suffering might be prevented. Although we must continue the search for the ideal anti-PTSD drug, clinical outcomes in PTSD may ultimately be more responsive to changes in public policy. Issues such as gun control, protection of children, safety for battered women, reduction of crime, and United Nations peacekeeping operations all have a direct bearing on the potential risk and prevalence of PTSD. In my opinion, prevention of trauma is a legitimate pursuit for the medical professional and one that should be taken seriously. Many colleagues disagree. They believe that professional activities should be restricted to the clinic. Public policy advocacy, they argue, is a private initiative that should be kept separate from professional actions. This controversy can be addressed and resolved only by each clinician individually.

Three other controversies have attracted considerable attention. The first concerns the efficacy of CISD following acute exposure to rape, war, or natural disasters. As noted previously, CISD has been generally accepted as an intervention that should be made available as soon as possible after acute traumatization. It is surprising, perhaps, that CISD has become so universally accepted despite the lack of data from randomized clinical trials demonstrating its efficacy. Indeed, as noted earlier, two recent studies suggest that CISD is either ineffective (59) or actually worsens PTSD symptoms (60) instead of preventing the later development of PTSD, as is generally believed. Obviously, much more research is needed. However, as we ask ourselves how CISD could have attracted so many strong adherents in the absence of convincing data, the answer may lie in the low prevalence of PTSD among individuals exposed to natural disasters (Table 3). If most people exposed to natural disasters will never develop PTSD, then most people exposed to natural disasters who receive CISD will never develop PTSD. The pertinent question, therefore, is whether individuals most likely to develop PTSD will have more favorable outcomes if they receive CISD. Clearly we must move beyond clinical impressions and descriptive studies to rigorous randomized trials if we hope to understand whether CISD can actually prevent the later development of PTSD among acutely traumatized individuals.

A trauma-related controversy that has been fueled by forensic rather than clinical activity concerns the question of "recovered memories." Adults who had been sexually assaulted as children sometimes have no memories of these childhood assaults (71). Sometimes, such missing traumatic memories later become accessible, so that patients regain access to discrete recollections of such childhood events as father-daughter incest (72). In some cases, there is irrefutable evidence that such childhood trauma actually occurred. In many other cases, there is no proof regarding the actuality of the alleged sexual contact. It is reported that approximately one-third of such "recovered memories" have emerged during the course of psychotherapy, whereas most such memories are triggered by life events that include aspects of the initial trauma (73). (Such a scenario is entirely consistent with current models of PTSD as stimulus-driven memories, feelings, or behavior.) Some patients who claim to have regained traumatic memories of this nature have confronted parents whom they now regard as perpetrators of childhood sexual trauma. In some cases they have taken parents to court for these alleged abuses. Sometimes the accused parents vehemently deny that such events ever occurred and maintain that these "traumatic memories" are really emblematic of a "false-memory syndrome" manufactured in the course of therapy. Loftus (74) has written extensively about the problem of authenticating such rediscovered, previously repressed memories. Williams (71), on the other hand, has shown that women who were sexually assaulted during childhood (documented by recorded visits to hospital emergency rooms) are sometimes unable to recall such traumatic events. Although a comprehensive review of this issue is beyond the scope of this chapter, there is general agreement that (a) memory, especially childhood memory, is fallible but not necessarily incorrect; (b) documented traumatic events are sometimes forgotten; and (c) forgotten memories of documented traumatic events are sometimes "recovered" (75–79). When we move from generalities to specifics, especially in a courtroom, it is often difficult to meet legal standards of proof regarding the veracity of a specific traumatic memory. This is especially so when the alleged perpetrator denies participating in such an event, and when there is neither additional evidence nor another witness to support the plaintiff's case. This hotly debated issue has theoretical, clinical, and forensic implications that will have to be sorted out in the future.

Finally, clinicians who work with victims of prolonged trauma, such as incest and torture, argue that such patients suffer from a clinical syndrome that is not adequately characterized by the PTSD construct. Although most patients in this category meet PTSD diagnostic criteria, it is argued that their primary problem is not PTSD. Instead, Herman (80) has proposed a new syndrome, which she has named "complex PTSD," characterized by problems with impulsivity, affect regulation, dissociative symptoms, self-destructive behavior, abnormalities in sexual expression, and somatic symptoms. Identification and treatment of these patients has been described previously (posttraumatic personality). The

question is whether complex PTSD is distinct from PTSD and whether it should have its own diagnostic identity. After much discussion, it was decided not to include complex PTSD in the DSM-IV. The controversy has stimulated a number of research initiatives. It is expected that this issue will be revisited during development of the next revision of the DSM-IV.

X. LOOKING AHEAD

As noted earlier, most PTSD research and most clinical applications of that research have focused on military veterans, rape victims, and survivors of natural disasters. That research has, on the one hand, deepened our understanding of fundamental biobehavioral mechanisms and, on the other, promoted the development of promising therapeutic interventions. It is time to expand this focus to other domains, with special attention to interpersonal violence and abuse.

Since the majority of traumatized people do not develop PTSD, we must try to identify risk and protective factors concerning the psychological impact of trauma. We must try to understand whether there is something unique about the trauma of interpersonal violence, something that generates a distinctive pathophysiology, and something that will require a different kind of clinical intervention than has been found effective for PTSD patients exposed to other kinds of trauma. The PTSD field has grown rapidly. There are many animal models, laboratory paradigms, assessment instruments, and conceptual approaches. A rich body of experimental and clinical data has already been developed. It is a good time to make a major effort to apply this knowledge so as to increase our understanding of the psychological impact of interpersonal violence.

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